

Dangerous Waste Corrective Action Permit, Agreed Order, and Cleanup Action Plan for Burlington Environmental, LLC.

The Washington State Department of Ecology (Ecology) is proposing to re-issue a permit to Burlington Environmental, LLC. (Burlington). Burlington is a wholly-owned subsidiary of PSC Environmental Services, LLC. (PSC). The facility and site are referred to as PSC-Georgetown.

Hazardous/dangerous wastes were managed at the PSC facility located at 734 South Lucile Street in Seattle, Washington, until the facility closed in 2003.

In 1991, Ecology and the U.S. Environmental Protection Agency (EPA) jointly issued a permit to Burlington Environmental to treat and store hazardous/ dangerous wastes at the 734 S. Lucile St. property now owned by PSC. The permit also included Resource Conservation and Recovery Act (RCRA) “corrective action” requirements and a schedule for meeting those requirements. The permit’s corrective action section was modified significantly in 2001 to update its requirements and schedule.

The PSC facility closed as a hazardous/dangerous waste treatment and storage facility in 2003 and the property is not currently being used commercially¹. However, releases from past operations at the facility, including storage of wastes and chemicals (solvents, petroleum, etc.) in underground storage tanks, have contaminated soils and groundwater. Groundwater contamination has been detected beyond the facility property to the west and southwest, and in an area to the east and north, owned by the Union Pacific Railroad company. As a result of this contamination, cleanup requirements continue to be needed in the company’s permit and are proposed in the new draft permit.

The facility’s existing permit expired in 2001². Since that time, requirements in the expired document have remained in effect and have governed operations and cleanup-related actions. The proposed draft permit is required to meet requirements for corrective action under Washington State’s Hazardous Waste Management Act (HWMA), Chapter 70.105 Revised Code of Washington (RCW), and its regulations. Washington State’s Dangerous Waste Regulations (Chapter 173-303 Washington Administrative Code (WAC)) require facilities that treat, store, or dispose of dangerous wastes to have a permit until all activities, including corrective actions and final closure, are completed. The proposed draft permit does not include provisions for treatment, storage, or disposal of hazardous wastes; it is strictly a document establishing PSC’s outstanding RCRA corrective action obligations at the site. The corrective action provisions of the expired permit will remain in effect until replaced by the corrective action provisions of a new permit.

For purposes of the new permit and the agreed order that will be issued in conjunction with the permit, the term “site” refers to an area beyond the former PSC operating facility boundaries. The site includes

¹The former PSC Georgetown facility is a secured property no longer used for commercial purposes. PSC uses the adjacent former White Satin Sugar facility for non-RCRA regulated activities and equipment storage.

² The expiration date of a permit signals the need to prepare a new permit and, generally, update permit requirements. Until the new permit is issued, requirements in the “expired” permit remain in force. A new PSC-Georgetown permit was not issued in 2001 for the reasons discussed on pages 3 and 4.

areas within the Georgetown community where contaminants released from the facility have migrated and impacted groundwater to the west and southwest.

To better administer the corrective action required by the permit, in 2005 Ecology divided the PSC site into two areas by a north-south delineation at 4th Avenue South. The first is the East of 4th Area, which includes the area where the former operating facility was located. The draft permit incorporates by reference an agreed order that establishes requirements for corrective actions within the East of 4th Area pursuant to the authority RCW 70.105.130 and .145 of the HWMA and RCW 70.105D.050(1) of the Model Toxics Control Act (MTCA). A cleanup action plan (CAP) for the East of 4th Area is attached to the agreed order.

Contaminated groundwater in the West of 4th Area has been impacted by releases other than those from PSC's facility. This area is currently the subject of remedial investigations being performed by three other potentially liable persons (PLPs)³. The proposed draft order requires that PSC continue to monitor contamination west of 4th Avenue. However, specific PSC cleanup obligations west of 4th will not be identified until completion of three investigations. At that time PSC's responsibilities will be established by requirements contained in a state cleanup order or decree. This order or decree will then be incorporated by reference into the permit via a permit modification.

State and Federal Authorities for Permits and Corrective Action

EPA has issued federal requirements for facilities that manage hazardous waste or conduct corrective action. The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA), and the regulations promulgated thereunder in Title 40 of the Code of Federal Regulations (CFR), regulate the management of hazardous waste nationwide.

On January 31, 1986, Ecology received final authorization from EPA for the state's hazardous waste program. The state's program has also received approval for subsequent revisions to this federal program. Ecology adopted additional federal requirements that went into effect June 10, 2000.

Therefore, in Washington State, both EPA and Ecology regulate hazardous waste. Washington State regulates more wastes than EPA, and Washington-regulated wastes are called *dangerous wastes*.

The Hazardous Waste Management Act (Chapter 70.105 RCW), and the Dangerous Waste Regulations (Chapter 173-303 WAC) regulate the management of dangerous waste in Washington. WAC 173-303-800 specifies that facilities must obtain a permit to treat, store, or dispose of dangerous waste. Under the requirements of WAC 173-303-64610 *et seq.*, facilities must have a permit to address corrective action (i.e., cleanup) in their permit. Facilities that no longer treat, store, or dispose of dangerous waste, but have had historic releases from solid waste management units, must also have a permit to conduct corrective action. So, although all former dangerous waste management units at PSC's Georgetown facility have now been "surface" clean-closed, the facility is still required to have a permit to conduct and complete corrective action (remediate contamination caused by the releases).

EPA authorized the state's hazardous waste corrective action program on November 4, 1994. Under the federally-authorized program, an order or other administrative mechanism incorporating Washington

³ Art Brass Plating, Blaser Die Casting, and Capital Industries. Each is currently performing an RI pursuant to a MTCA order.

State's cleanup authority, MTCA, is considered to be part of the authorized corrective action program. However, the order or other administrative mechanism must be incorporated into an existing permit, or issued simultaneously with and incorporated by reference into a new dangerous waste permit.

In other words, any order or other administrative mechanism issued to a facility incorporating MTCA requirements is not considered part of the EPA-authorized corrective action program unless the order or other administrative mechanism is incorporated directly into a permit. For this reason, an agreed order for the eastern portion of PSC's site is proposed for incorporation by reference into the PSC-facility draft permit. This process of placing specific cleanup requirements into an order has been used to save time and resources, and simplify the decision process. The agreed order and its attached cleanup action plan will be enforceable conditions under the permit.

Permits issued under Washington's authorized program will be enforceable by both Ecology and EPA. However, terms of agreed orders or administrative mechanisms which go beyond the scope of the authorized program are considered broader in scope and are not enforceable by EPA. Ecology can impose these requirements pursuant to state laws or enforce them in lawfully issued orders, other administrative mechanisms, or permits.

Any substantial changes to PSC's agreed order for the East of 4th Area, once finalized, will require a public comment period under the MTCA WAC 173-340 cleanup regulations. Modification to the permit, as required by the Dangerous Waste Regulations, may also be necessary.

Changes to RCRA or RCRA Rules under the Hazardous and Solid Waste Amendments

In general, new or amended requirements in the federal Hazardous and Solid Waste Amendments of 1984 and related regulations will apply automatically to PSC-Georgetown facility's corrective action activities (as applicable). The exception is for new requirements that are less stringent than those in effect when the permit is issued.

Draft Permit's *Principal Facts*

WAC 173-303-840, *Procedures for Decision Making*, describes the required contents of a draft permit fact sheet under paragraph (2)(f). The fact sheet should "briefly set forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit." It should "briefly describe the derivation of the conditions of the draft permit and the reasons for them."

As noted above, a RCRA hazardous/dangerous waste management permit was issued for PSC's facility in August 1991. The ten-year permit expired in 2001. It has not been re-issued over the past seven years due to several factors. First, a major modification of the permit's corrective action section (Section VII) occurred in 2001. As part of that modification, new corrective action requirements were introduced into the permit to carry the cleanup process to the Cleanup Action Plan stage as set forth in the MTCA regulations. An updated cleanup schedule was included which contained enforceable due dates for Remedial Investigation, Feasibility Study, and Interim Action deliverables. New requirements for interim actions and financial assurance were also included. Although the permit expired in 2001, all of these requirements continued in effect, which precluded the need to issue a new permit containing the same corrective action requirements.

Second, shortly after the 1991 permit expired, PSC decided to close its hazardous/ dangerous waste management operations at the facility. Requirements in the “operating” portion of PSC’s permit, therefore, were only necessary long enough to govern those management activities performed by PSC prior to closure. Operational closure was subsequently completed in 2003. Once facility operations ceased, only the corrective action portion of the permit remained active. There was no longer a need to re-issue a permit other than to establish any new requirements needed for cleanup. As noted above, since the existing (expired) permit contained requirements for cleanup through the development of a site cleanup action plan, and these requirements had been recently added, new cleanup requirements were not needed until a cleanup action plan was finalized.

In proposing the draft PSC-Georgetown permit to the public, Ecology is also proposing a draft agreed order and draft cleanup action plan. These two documents contain PSC’s cleanup requirements for the East of 4th Area of the site. The draft agreed order also states that PSC continues to have cleanup obligations west of 4th Avenue. However, specific cleanup requirements for the West of 4th Area of the site will not be identified until contamination in that area has been adequately characterized by other responsible parties, currently performing their own remedial investigations.

In essence, then, Ecology is proposing that the existing, expired permit be replaced by three documents:

1. A permit that contains requirements to implement corrective action in accordance with the Agreed Order and its associated CAP (since hazardous/dangerous waste management will not be conducted at the facility).
2. A MTCA Agreed Order. The Order will contain those required cleanup actions set-out in the CAP for the East of 4th Area. The Order will also contain requirements for the continued monitoring of groundwater contamination west of 4th Avenue.
3. A Cleanup Action Plan (CAP), attached to the Agreed Order. The CAP will contain the selected cleanup action (remedial action) for contamination east of 4th Ave. S.).

Results of Issuing a New Permit

The new permit does not allow any treatment, storage, or disposal of hazardous/ dangerous wastes at the PSC facility property. No new management activities become sanctioned by the new permit. The permit and order are only required to establish new PSC corrective action (cleanup) obligations.

WAC 173-303-840(2)(f)(iii)(B) requires that the fact sheet include, when applicable, “the type and quantity of wastes, fluids, or pollutants which are proposed to be or are being treated, stored, disposed, injected, emitted, or discharged.” No wastes or pollutants are proposed for treatment, storage, or disposal in PSC’s draft permit, nor are wastes or pollutants proposed for injection. The preferred alternative in the draft CAP does, however, include remedial elements that cause pollutant emissions, result in pollutant discharges, and inject fluids. These are described below:

Proposed pollutant emissions: the preferred cleanup action alternative includes soil vapor extraction (SVE), a technology that *pulls* contaminated soil gases out of the unsaturated zone. These gases are then treated before they are discharged, but emissions will still contain low levels of contaminants. In addition, the preferred alternative includes continued reliance on vapor intrusion mitigation systems. The 30 systems currently operating in the site area collect soil gas from beneath the buildings of concern and

route it to an exhaust point above the roof. By so doing, soil gases do not move indoors and contaminate indoor air. The gases emitted at the roof contain relatively low levels of volatile contaminants.

Proposed pollutant discharges: the preferred alternative includes continued reliance on a groundwater recovery and treatment system to maintain an inward hydraulic gradient within the barrier wall area. This system maintains pressures across the wall so that any leakage through the wall should result in groundwater coming inside the enclosed area. The groundwater that is pumped from behind the wall is treated before being discharged to the sewer under a King County-Metro Industrial Waste Program permit. The groundwater is routed through an air stripper that transfers the volatile contaminants into an air stream that is then carbon-treated. Although the air that is emitted from the carbon treatment units is relatively clean, it contains low levels of contaminants. The groundwater that leaves the air stripper and is discharged to the sewer also contains low concentrations of contaminants. These concentrations must be below levels identified in PSC's discharge permit with King County Metro.

Proposed liquid injection: the preferred alternative includes in situ bioremediation (ISB) by injecting electron donor into contaminated groundwater behind the barrier wall. ISB is being proposed to reduce the mass of certain types of organic contaminants (chlorinated ethenes, for example) in groundwater. The liquid injected may be molasses or a lactate solution. In any case it will cause no environmental harm. Similarly, enhanced groundwater bioremediation in soil excavation areas on the Union Pacific property will use a one-time placement of electron donor material into the base of select excavations prior to placement of backfill. This material, which may be in liquid form, will not be injected. It will also be environmentally safe.

Contingent remedial actions: two actions are described in the draft CAP that may need to be implemented if certain contaminants in groundwater do not naturally attenuate as quickly and effectively as predicted. One such action is groundwater air sparging. The other action, specifically intended for 1,4-dioxane contamination, uses a pump-and-treat technology at one particular well location.

Air sparging injects air into the aquifer to vaporize volatile contaminants and increase the oxygen content of the groundwater. Volatile contaminants in the vapor phase migrate into soil gas (where, depending on the levels produced, they may need to be collected and treated through SVE). Adding oxygen to the water can help create geochemical conditions conducive to de-mobilizing inorganic contaminants.

1,4-dioxane contaminated groundwater at well CG-122, if unable to naturally attenuate to acceptable levels, will need to be pumped to the surface and treated before being discharged to the King County Metro sewer. Treatment is commonly performed using an advanced oxidation technology as part of the treatment train. Although the treatment train will substantially reduce the concentrations of 1,4-dioxane and other contaminants in the collected groundwater, the water discharged would contain low levels of several hazardous substances.

Basis for Permit Conditions in the New Permit

The new PSC permit will contain limited conditions, most of them related to general RCRA authority provisions. However, the permit will also incorporate by reference an agreed order, establishing PSC's cleanup obligations for the East of 4th Area of the site. In addition, the order will contain requirements for monitoring groundwater contamination due to facility releases in the West of 4th Area. These cleanup-related requirements are needed to protect human health and the environment and complete site cleanup in

the East of 4th area. No “operating” requirements will be included in the new permit because PSC no longer manages hazardous/dangerous wastes at the Georgetown facility.

The cleanup requirements contained in the new permit and order have been chosen based on existing site conditions and the status of the site cleanup process. They are supported by documents on file at Ecology’s Northwest Regional Office, and constitute the Administrative Record for Ecology’s proposed decision. The documents of primary interest include:

- PSC’s 2000 permit application.
- The draft permit, draft Agreed Order, and draft Cleanup Action Plan (CAP). The CAP is an attachment to the Agreed Order.
- PSC’s 2003 Remedial Investigation (RI) Report.
- Ecology’s February 2004 comment letter, responding to the 2003 RI Report.
- PSC’s four addenda to the RI Report, submitted July 2004, August 2004, September 2005, and January 2005.
- Ecology’s comment letters, responding to each of the RI Report addenda.
- PSC’s 2005 draft Feasibility Study (FS) Report for the eastern portion of their site.
- Ecology’s November 2005 comment letter, responding to the draft 2005 FS Report.
- PSC’s five technical memoranda to the FS Report, submitted June 2006 (two memoranda)⁴, May 2006, January 2007, and April 2007.
- Ecology’s comment letters, responding to each of the FS technical memoranda.
- Ecology’s December 2007, letter, identifying our preferred alternative for the eastern part of PSC’s site.
- PSC’s September 2008 revised report, discussing the findings of their investigation of the southwest portion of Union Pacific’s Argo Yard, and proposing cleanup actions to address the detected contamination.
- Ecology’s October 21, 2008, comment letter, responding to the September 2008 Report.
- PSC’s Pre-Corrective Action Monitoring Plan, revised this year to transfer 2009 monitoring responsibilities for certain wells located west of 4th Ave. S. to two other PLPs.
- PSC’s 2008 and 2009 quarterly monitoring reports (submitted each February, May, August, and November)⁵.
- PSC’s August 2002 Inhalation Pathway Interim Measure (IPIM) Work Plan and February 2003 IPIM Technical Memorandum #1.
- PSC’s 2008 annual barrier wall (HCIM) performance monitoring report (submitted March 2009)⁶.

⁴ The first technical memorandum was revised and submitted in 6/06; this was also when the third memorandum was submitted. The second memorandum was submitted in 5/06. The 4th memorandum was submitted in 1/07 and the fifth in 4/07.

⁵ These quarterly reports have been submitted for many years. Reports submitted over the last five to six years show contaminant concentrations associated with PSC monitoring wells located between Airport Way and the Duwamish Waterway.

⁶ Ecology files contain a number of documents concerning the barrier wall and its related pumping system. For example, there are Design documents (2002 and 2003), pre-2009 annual performance reports, and several post-construction reports.

Requested Variances or Alternatives to Required Standards

As discussed in the draft CAP, Ecology is proposing a conditional point of groundwater compliance for contaminated groundwater. That is,

- (1) groundwater contamination due to PSC releases on Union Pacific's property must be remediated to attain cleanup levels throughout the area of contamination (a "standard" point of compliance). But,
- (2) for groundwater west and southwest of the Union Pacific property, including groundwater beneath the PSC property, a conditional point of compliance is proposed. The "point" proposed is immediately outside the barrier wall. This means that PSC would not be required to attain cleanup levels in groundwater behind the barrier wall within a "reasonable restoration time frame." Outside the wall groundwater cleanup levels must be achieved.

Ecology's reasons for proposing this conditional point of compliance for groundwater are explained in the draft CAP, as well as in our letters responding to PSC's FS documents. Basically, the Department has concluded that the nature of contamination behind the wall is such that active remediation to attain all cleanup levels is not currently practicable. Consequently, we are proposing that this groundwater be contained. This is an option under the WAC 173-340 MTCA regulations.

Ecology's preferred cleanup action also proposes to cover or cap a number of areas where soils are contaminated, rather than to require active remediation to attain all cleanup levels. We have concluded that actions to attain all cleanup levels in these soils is disproportionately costly compared to a combination of treatment and containment. Human health and the environment will be effectively protected by covering these areas and implementing controls to ensure the capping is maintained and not breached.

Ecology's preferred cleanup action proposes that groundwater cleanup levels be based on protection of surface water and protection of indoor air quality. Even though the Duwamish River is some three quarters of a mile from the PSC facility, groundwater contaminant concentrations between the facility and the river, as well as those in groundwater in the southwest part of the Union Pacific property, must eventually attain levels low enough to be protective of surface water itself.

Except for the Deep Aquifer, which appears to only be modestly contaminated by releases from the PSC facility and may not extend as far west as the river as a distinct saturated zone, impacted groundwater at the site is not considered a potential drinking water resource for the foreseeable future. Ecology is proposing that it be considered *non-potable*, as that term is defined in WAC 173-340-720(2). Although the natural contaminants in this water could be treated prior to the water's use as drinking water, the cost associated with such treatment – in comparison to using city-supplied water – makes pumping and treating an option that is not currently practicable. This may change in the future. If so, Ecology will re-evaluate the groundwater cleanup levels established for PSC's site and, if need be, adjust them so that they are low enough to be protective of a drinking water use⁷.

PSC's "non-potability" demonstration is contained in their 2003 RI Report. Ecology's response is included in our February 2004 letter, cited above.

⁷ This would not require adjustment of the cleanup levels for all substances detected in site groundwater. Using a combination of surface water and indoor air protective levels, as proposed in the draft CAP, results in groundwater cleanup levels that for some substances are as protective, or more protective, than MCLs or other drinking water-based cleanup levels.

Public Notice

Ecology's Public Notice for the draft permit, draft agreed order, and draft CAP is attached to this fact sheet. As required by WAC 173-303-840(4), the Notice contains a description of the procedures for reaching a final decision on the draft permit and order. It includes:

- Beginning and ending dates of the comment period.
- The address where comments should be sent.
- Procedures for requesting a public hearing.
- Ways the public may participate in the final decision.
- Contacts for additional information.

Copies of the Public Notice have been mailed to PSC, individuals on PSC's facility mailing list, persons located in the site's "affected area," and those persons and agencies described in WAC 173-303-840(3)(e)(i).

Ecology has sent this Fact Sheet to the applicant (PSC) and will send it to any other person upon request.